

## ROUTING AND RECORD SHEET

SUBJECT: (Optional)

FROM

Chief, New Building Project Office, OL  
4E50 Headquarters

EXTENSION

NO.

OL 20793-83

DATE

12 DEC 1983

TO: (Officer designation, room number, and building)

DATE

RECEIVED

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OFFICER'S INITIALS

COMMENTS (Number each comment to show from whom to whom. Draw a line across column after each comment.)

1. C/LSD/OL  
3E14-Hqs

12/15

RM

1. FYI. Please return.

2. DC/LSD

B

3. Marie

12/20 mch

4.

5. C/NBPO/OL  
4E50 Hqs

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*file  
Parking & Transport*

NATIONAL CAPITAL PLANNING COMMISSION

In Reply Refer To:  
NCPC File No. 2303

WASHINGTON, D.C. 20576

November 30, 1983

STAT

[Redacted]  
New Building Project Office  
Office of Logistics  
Central Intelligence Agency  
Washington, D.C. 20505

Dear Larry:

Enclosed for your information is: (1) a copy of a 1980 UMIA report entitled "Ridesharing Versus Road Building: the TVA Experience" and (2) an agreement reached between the TVA and the State of Tennessee relative to access to one of TVA's plants.

Barbara K. Reichart, Chief of Transportation Management and Ridesharing Programs Branch for the Federal Highway Administration (DOT) advises me that most Federal/state situations like yours are settled by a gentlemen's agreement of some kind. TVA's written agreement is the only one they know of and it, of course, is not exactly like CIA's current situation vis-a-vis VDH&T.

I have informally sounded out our General Counsel who has not researched this specific area but generally sees no reason why CIA and VDH&T couldn't reach some kind of written agreement on the traffic management strategies to be followed by CIA. In such a case, plans for physical improvements would be based upon such an agreement.

The enclosed may not be too helpful. However, I thought we ought to find out what DOT's experience had been as a context for your continuing discussions with VDH&T. I'm sure Barbara would be happy to talk with you if you so desire.

Best wishes,



Donald F. Bozarth  
Associate Executive Director, Regional Affairs

Enclosure

OL 20793-83

*Received*  
*11-10-75*

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

Before the Atomic Safety and Licensing Board

In the Matter of	)	
	)	
TENNESSEE VALLEY AUTHORITY	)	Docket Nos. STN 50-518
	)	STN 50-519
(Hartsville Nuclear Plants	)	STN 50-520
Units 1A, 1B, 2A, and 2B)	)	STN 50-521

SETTLEMENT BETWEEN THE STATE OF TENNESSEE AND APPLICANT

Pursuant to section 2.759 of the Commission's Rules of Practice, the State of Tennessee (State) and Applicant, Tennessee Valley Authority (TVA), have agreed to settle Contentions 4, 10, and 15 as accepted by the Atomic Safety and Licensing Board in its Special Prehearing Conference Order #2.

CONTENTION 4

Settlement of Contention 4 is based on the following considerations:

An analysis of the socioeconomic impacts of construction of the proposed Hartsville Nuclear Plants shows that construction workers commuting to and from work at the plant site will add significantly to the peak-hour traffic on certain roads. TVA and the State have the mutual objective of maintenance of the traffic levels on State highways in the impact area at acceptable levels. To achieve this end, TVA is committed to maintenance of

the construction worker traffic at levels that will not impair the ability of the State to keep traffic on these highways at service level D or better.

TVA agrees that if, pursuant to this agreement, any local road, street, or State highway which must be constructed, reconstructed, or otherwise modified, except for routine maintenance work, in order to adequately accommodate the traffic volumes caused as a direct result of traffic generated by the plant (employee traffic, tourist traffic, service traffic, etc.), it shall be the full responsibility of TVA for making these improvements to the extent made necessary by the project at no direct cost to the State. The State will provide assistance in the planning and engineering phase of any project required as a direct result of traffic generated by the plant.

TVA also agrees to take any reasonable physical or traffic control measures as may prove to be necessary to ensure that plant entrances are safe. If levels of service on State highways in the impact area regularly exceed levels of service D during peak commuter hours as a result of proposed Hartsville Nuclear Plant construction traffic, additional mutually acceptable measures will be implemented by TVA to negate the adverse effects caused by this excessive traffic.

Applicant agrees to enter into negotiations with the Tennessee Department of Transportation on procedures to be used to jointly monitor the traffic impacts on State highways in the impact area and to review

the approved level of service classifications on these highways. Such procedures and reviews will be mutually formalized within six months after the Nuclear Regulatory Commission has granted TVA a limited work authorization. These negotiations and other questions arising under this settlement will be submitted for resolution to the Commissioner of the Department of Transportation and the TVA Manager of Engineering Design and Construction.

The State, at its own expense, will establish one (1) monitoring station (counter) on State Route (SR) 25 to the East (Counter Station Number 8) and West (Counter Station Number 38) of the plant entrance(s). These counters will operate continuously beginning in October 1975 until the last unit is licensed to operate by the Nuclear Regulatory Commission. In addition, the State will maintain six counters (Counter Station Numbers 7, 9, 24, 25, 26, and 35) in Trousdale County. These counters will be operated for a week each, three or four times per year. In Smith County two counters (Counter Station Numbers 37 and 64) will be located. One counter (Counter Station Number 33) will be located in Carthage. All three counters will be operated by the State for a week each, three or four times per year.

The Tennessee Department of Transportation will bear the additional burdens of conducting added surveys and any supplementary traffic surveys if such surveys are found to be necessary. Maps of the survey locations are attached.

#### CONTENTIONS 10 and 15

Settlement of contentions 10 and 15 is based on the following considerations:

1. An analysis of the potential socioeconomic impacts of the construction of the Hartsville Nuclear Plants (plants) shows that the influx of construction workers will cause an increased demand for public education in the areas in which the construction workers moving into the area take up residence. TVA has proposed a program of assistance to the local governments in the areas significantly affected by this increased demand. (See NRC FES at pages D-10 - 11). The State provides assistance to school systems through its State Minimum Foundation Program (Equalization Fund), State Capital Outlay Fund, Leave for Teachers Fund and Textbook Fund. In order to assure the ability of the school systems to provide comparable or improved services, the State and TVA enter into this agreement.

In each school year during the period from start of construction of the proposed Hartsville Nuclear Plants until the issuance of an operating license for the last unit, the Minimum Foundation, State Capital Outlay Fund, Leave for Teachers, and Textbook costs to the State for education assistance and the revenue to the State allocable to the education program will be calculated. The costs will be calculated on the basis of the following:

During each school year each of the school systems in the five-county impact area will maintain records and make reports to the State as required by statute and regulations on enrollment, attendance, transportation, etc., for all students, including those attributable to construction employment. At the local level these records are maintained by classroom, grade level, school, and school system and serve as the basis for earning State support. Separate records, using similar forms and registers, would

be maintained for students whose parents or guardians are employed at the Hartsville Nuclear Plants during construction. The set of records maintained on verified impact students will indicate whether the student transferred from out of state, transferred from another school district in the state, transferred from another school system in the five impact counties, or resided in the school district prior to parent or guardian employment at TVA.

The two sets of records and reports shall serve as the basis for determining additional State costs to local educational agencies due to impact. Procedures and forms normally used by the Tennessee Department of Education will be employed to determine the level of state support required to the five school districts. One annual settlement will be calculated showing total State support based on school membership, average daily attendance, number transported, etc., for all students in the impact area school systems. The second annual settlement will be calculated showing total State support based on the same items and excluding direct impact students. Direct impact students shall be those: (1) whose parent or guardian is an employee of the Hartsville Nuclear Plants during the school year; and (2) who transferred to the school system from an out-of-state school or transferred from another public school system in Tennessee during the same school year after two or more months in enrollment, thereby qualifying both school systems for State support. The difference of State support required under the two settlement calculations shall comprise the total annual additional State support directly attributable to impact during that year.

Income to the State allocable to education programs will be calculated as follows:

In May of each year the number of plant construction employees who moved into the impact area from out of state will be determined. Records of the total personal income to these workers will be maintained by TVA. The employee personal income will be used to calculate the tax revenue to the State from the sale of alcoholic beverages, beer, tobacco, and retail goods and services, by taking the product of the total personal income of out-of-state employees and the ratio of the statewide total collections of the aforementioned taxes reaching the State General Fund to the total personal income in the State. This ratio will be initially calculated using the base period 1972-1974. Each year after the initial calculation, the ratio will be recalculated using data for the most recent years for which data is available.

Using calculations based on 1972, 1973, and 1974 data, it was found that there was a relatively constant relationship between personal income generated in the State and the portion of revenue to the State General Fund from taxes on alcoholic beverages, beer, retail sales, and tobacco. Estimates of personal income used in the calculations were those produced by the Bureau of Economic Analysis of the Department of Commerce and revenue data was taken from "Biennial Report, Tennessee Department of Revenue, Fiscal Years 1973-1974." The average annual ratio of these selected revenue sources to personal income was found to be 0.02953, or 2.953 percent.



Multiplying the total out-of-state payroll by 2.953 percent yields the amount of new taxes reaching the State General Fund.

Only a portion of these new taxes, however, reaches the Equalizing, Textbook, Sick Leave, and Capital Outlay Funds. For the period from 1972-1973 it was found that the mean Equalizing, Textbook, Sick Leave, and Capital Outlay to total State General Fund ratio was 0.3756, or 37.56 percent.

Therefore, TVA's general tax credits can be calculated by successively multiplying the total new out-of-state construction employee income by 0.0295 by 0.3756. The product of the new out-of-state construction employee and these two ratios will be calculated each year and subtracted from the increased State costs described earlier.

In addition to the above new general taxes generated by out-of-state movers, the State will receive revenues directly from TVA through in-lieu-of taxes, pursuant to section 13 of the TVA Act, as amended. To determine the amount of additional income that the State will realize because of the construction of the Hartsville Nuclear Plants, TVA will calculate the in-lieu-of tax payments to the State if Hartsville were not being constructed in Tennessee and the in-lieu-of tax payments with construction at Hartsville. The difference between the latter and the former, as verified by the State Board of Equalization, will be recognized as TVA's contribution to Tennessee because of the Hartsville construction project.


The payments from the in-lieu-of tax payments which are redistributed because of Hartsville by the Board of Equalization to cities and counties shall be subtracted from the total in-lieu-of tax payments attributable to Hartsville to calculate the contribution of in-lieu-of tax payments to the State General Fund.

As discussed earlier, 37.56 percent of the State General Fund was distributed to the Equalizing, Textbook, Sick Leave, and Capital Outlay Funds in the Department of Education. Thus, if the total new Hartsville in-lieu-of tax payment as reduced by redistribution to the cities and counties is multiplied by 37.56 percent, the additional in-lieu-of tax monies actually reaching the State Equalizing Fund can be determined.

Summing the additional general tax monies and the additional in-lieu-of tax monies which actually reach the Equalizing, Textbook, Sick Leave, and Capital Outlay distributions of the Tennessee Department of Education will yield the total TVA credits to the Tennessee Department of Education. The net balance between costs and credits based on the above calculations and narrative will form the TVA/State Hartsville Education Mitigation Pool (Pool). The funds maintained in this Pool will be exclusive of those funds negotiated between TVA and the impact area government and school officials for portable classrooms, school buses, classroom equipment, and support space.

If, for any particular year, it is found that impact costs caused by dependents of out-of-state movers and first year, doubly counted, in-state movers exceed impact tax and in-lieu-of tax credits for these mover dependents, TVA will contribute the difference between the costs and the credits to the Pool.

2. In arriving at conclusions regarding socioeconomic impacts and appropriate mitigation actions, certain assumptions have been made concerning the probable distribution of residences of workers moving into the area to construct the plants, the number of persons who will move into the area to provide various supporting services and functions, the routes commuters will drive to and from the construction site and other similar matters. The Applicant and State agree to monitor the socioeconomic impacts semi-annually during construction to determine if adjustments to the impact area and mitigation programs (including the agreement in paragraph 1 above) are warranted by any difference between Applicant's projections and the socioeconomic impacts as they actually develop. The area coordinating committee will assist this monitoring process. The basis for such a monitoring program will be that one representative of the Governor's Office and Applicant's Project Coordinator will be designated as contact points and they shall arrange for such other representatives from their respective organizations as may be appropriate to participate in this review. These areas include, but are not limited to, those described in section 4.2 of Applicant's Final Environmental Statement, Hartsville Nuclear Plants, Volume I.

  
William B. Hubbard  
Solicitor for the State of Tennessee

  
Alvin H. Gutterman  
Attorney for Applicant

Nashville, Tennessee  
October 21, 1975

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1983 SEP 23 PM 1 13

**UMTA Project Evaluation Series**

# **Ridesharing Versus Road Building: The TVA Experience**

**March 1980**



**Prepared for**

**U.S. DEPARTMENT OF TRANSPORTATION**  
**Urban Mass Transportation Administration**  
**Office of Service and Methods Demonstrations**  
**Washington, D.C. 20590**

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RIDESHARING VERSUS ROAD BUILDING

THE TVA EXPERIENCE

TENNESSEE VALLEY AUTHORITY

March 1980

CONSTRUCTION COMMUTER TRANSPORTATION

THE TVA EXPERIENCE

Background

The traditional approach in transportation planning has been to increase the supply of transportation facilities and services to match the growing levels of travel demand. Recent events and trends, such as the energy crisis and the fiscal constraints faced by public agencies in financing capital improvement projects, have led to the reexamination of the traditional planning approach. Today, a greater emphasis is being given to transportation alternatives that can respond to the immediate travel needs and achieve a greater utilization of the facilities and services already available. Promoting the use of high-occupancy vehicles such as buses and vans, while simultaneously increasing the occupancy of private automobiles, is an example of such an alternative. The Tennessee Valley Authority's Hartsville Nuclear Plant construction project in Middle Tennessee has offered an opportunity to test this alternative.

During the initial planning to minimize the socioeconomic impacts of the proposed nuclear plant construction project, it became obvious to TVA planners that either a traffic mitigation program or a road-widening project would be necessary to accommodate construction worker traffic.

Initial analysis indicated that ten miles of two-lane highway approaching the Hartsville project would need to be four laned at an estimated cost of approximately seven (7) million dollars. This stretch of highway had no developmental

potential for the area or the region. In addition, a road widening-project would delay project construction at least one year. Cost estimates for a ridesharing program were approximately \$3 million less any residual value for vehicles.

The obvious cost effective alternative was to establish an employee transportation system. Fortunately, TVA already had experience with ridesharing at its headquarters in Knoxville, Tennessee. However, at Hartsville, there were no bus companies readily available to provide service. TVA would have to develop and operate its own commuter transportation system.

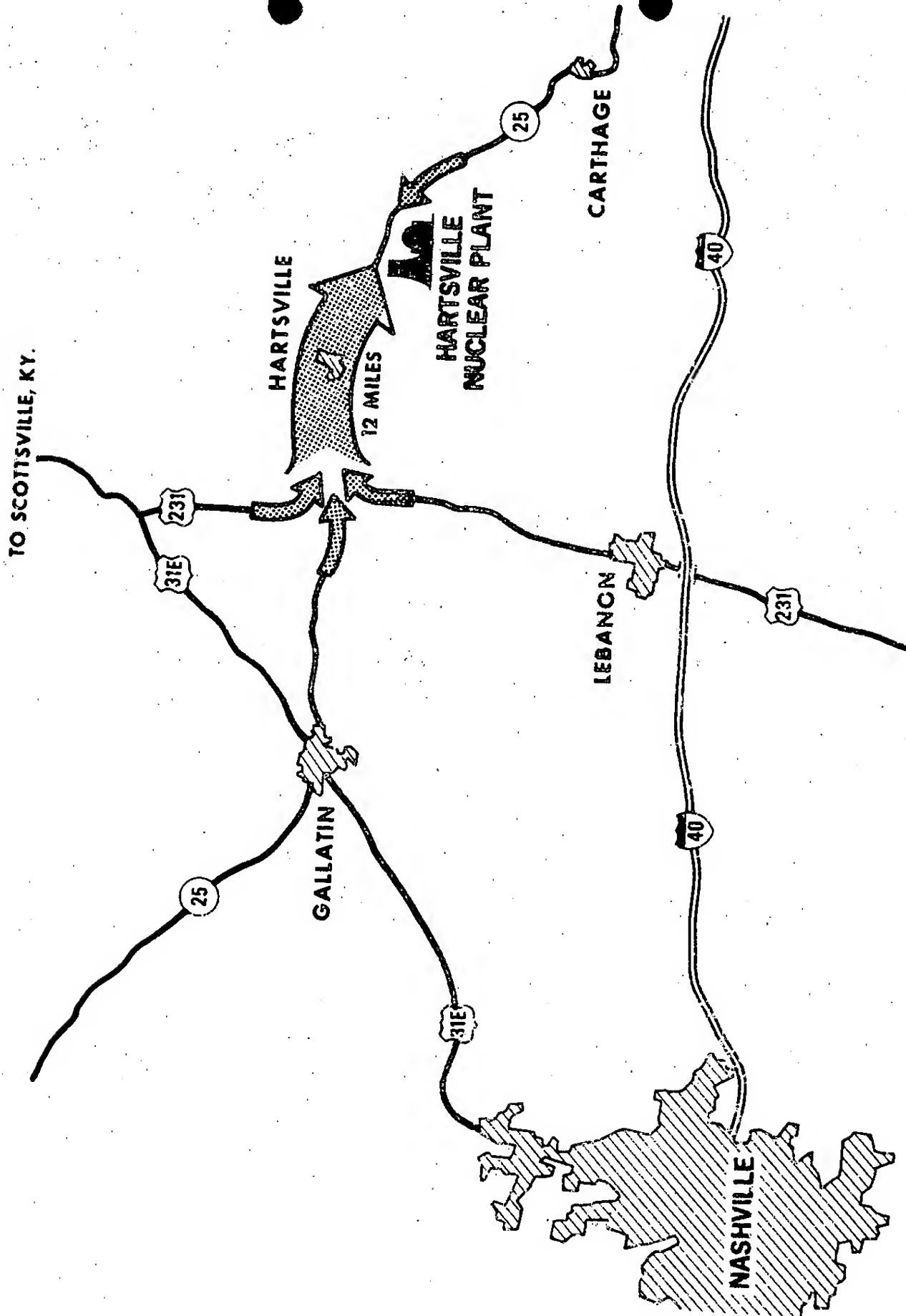
An agreement was reached with the Tennessee Department of Transportation that the impact on the area of construction worker traffic would be mitigated by the use of a TVA-sponsored commuter transportation system. The State would monitor the traffic and reserve the right to require road widening if acceptable traffic volumes were exceeded.

### Setting

The Hartsville Nuclear Plant construction site lies in Trousdale and Smith Counties about 50 miles northeast of Nashville, Tennessee. The combined population of both counties is less than 20,000. The only towns within a radius of ten miles are Hartsville (population 2,243) and Carthage (population 2,491).

The critical transportation problem the Hartsville construction project creates is the peak hour traffic generated by the construction work force. Maximum traffic will occur during the middle three years of a 10-year construction





Map of the Hartsville Highway situation. Impacted area covers 12 miles on Highway 25 from Highway 23 to site.

period when there will be over 6,000 employed at the site. Approximately 80 percent of the work force would approach the project from the west which compounds the traffic problem.

#### Traffic Mitigation Plan

Experience with other TVA construction projects indicates that ordinarily traffic generated by the size of the Hartsville work force would eventually surpass the rated capacity of State Highway 25, which serves the project site. TVA's traffic mitigation strategy is to reduce the number of employee cars approaching the site by attracting workers into high-occupancy vehicles such as buses and vans. TVA agreed to maintain traffic levels on State highways in the impact area at service level D (750 vehicles per hour--State Highway 25 was at project start carrying about 200 local vehicles per hour). In order to maintain an acceptable traffic flow, about half of the day shift work force at peak employment will need to be in high-occupancy vehicles taking approximately 1,300 worker cars off the road.

In order to maintain and monitor traffic to assure an acceptable traffic flow, several traffic counter stations were established throughout the impact area to monitor the number of vehicles which pass per hour. Traffic audits will be conducted at regular intervals until construction is completed.

If traffic counts show that levels of service on the highway in the impact area regularly exceed an acceptable level during peak commuter traffic, additional measures would have to be implemented by TVA.

It was obvious that a voluntary carpool program would not do the job. Such a dramatic shift in commuting behavior requires persuasion by management as well as economic incentives (low fares). This effort required raising the current 1.7 average vehicle occupancy experienced at other TVA construction sites to about five, a shift of over 2,000 workers from cars to high-occupancy vehicles. To accommodate this shift would require TVA's sponsoring approximately 20 buses and 200 vanpools at the Hartsville project by 1981 peak employment. As of March 1979, there are 155 vans and 12 buses in operation.

Table 1 illustrates the increase in the number of vehicles traveling State Route 25 during peak hours relative to the increase in the work force. The ratio of occupants per vehicle is also shown. While there is a significant increase in the work force, the increase in the number of vehicles is not as dramatic. Further, the average number of occupants per vehicle has increased.

TABLE 1

## Employee Traffic

West of Site - Afternoon

	<u>Work Force</u>	<u>TVA Traffic</u>	<u>Average Vehicle Occupancy</u>
February 15, 1976	1,123	361	3.1
September 22, 1977	3,321	629	5.2
November 2, 1978	5,558	505*	5.5

\*Per 1/2-hour staggered shift.

Shortly after the start of the employee ridership program, average vehicle occupancy was double that of other TVA construction sites. However, to stay within the desired service level, average vehicle occupancy must continue to increase as employment rises.

### Ridesharing

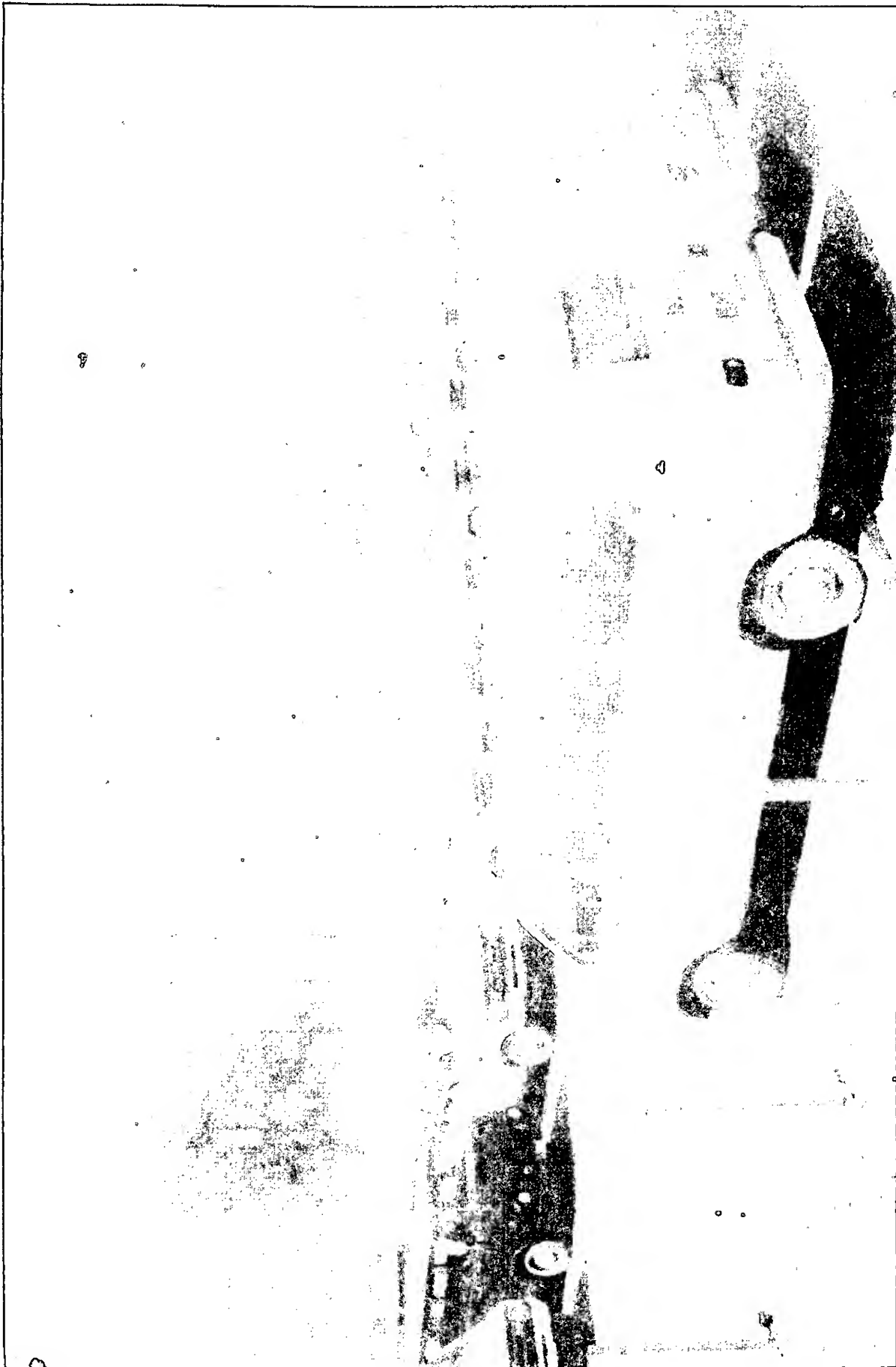
During March 1979, more than 150 vans and 12 buses carried TVA employees from a number of cities and towns in Middle Tennessee to the construction site. A breakdown of van and bus use and the average ridership in each is illustrated in Table 2.

TABLE 2

## Ridership

	<u>Van Pools</u>	<u>Average Ridership</u>	<u>Bus Pools</u>	<u>Average Ridership</u>
October 1976	51	8.1	--	--
July 1977	105	8.3	5	23
October 1978	144	8.8	11	34
March 1979	155	9.8	12	39

Each van has a carrying capacity of 15 people. Each bus is capable of transporting 41 workers. Generally, at other TVA locations, each van replaces six cars and each bus replaces 30 cars. As a result of TVA-sponsored van pools and buses, at Hartsville about 1,300 cars are eliminated from the traffic flow.



Van parking lot with priority parking - note business background.

Spinoff Benefits

Although the main goal of TVA's employee transportation effort at Hartsville is to keep vehicular traffic on State Route 25 below its rated capacity, an effective employee transportation system also has the potential of providing several spinoff benefits to TVA, the community, and to the employees themselves. Perhaps one of the most significant benefits of the ridesharing program is the employment opportunities it provides to black employees. This is illustrated in Table 3.

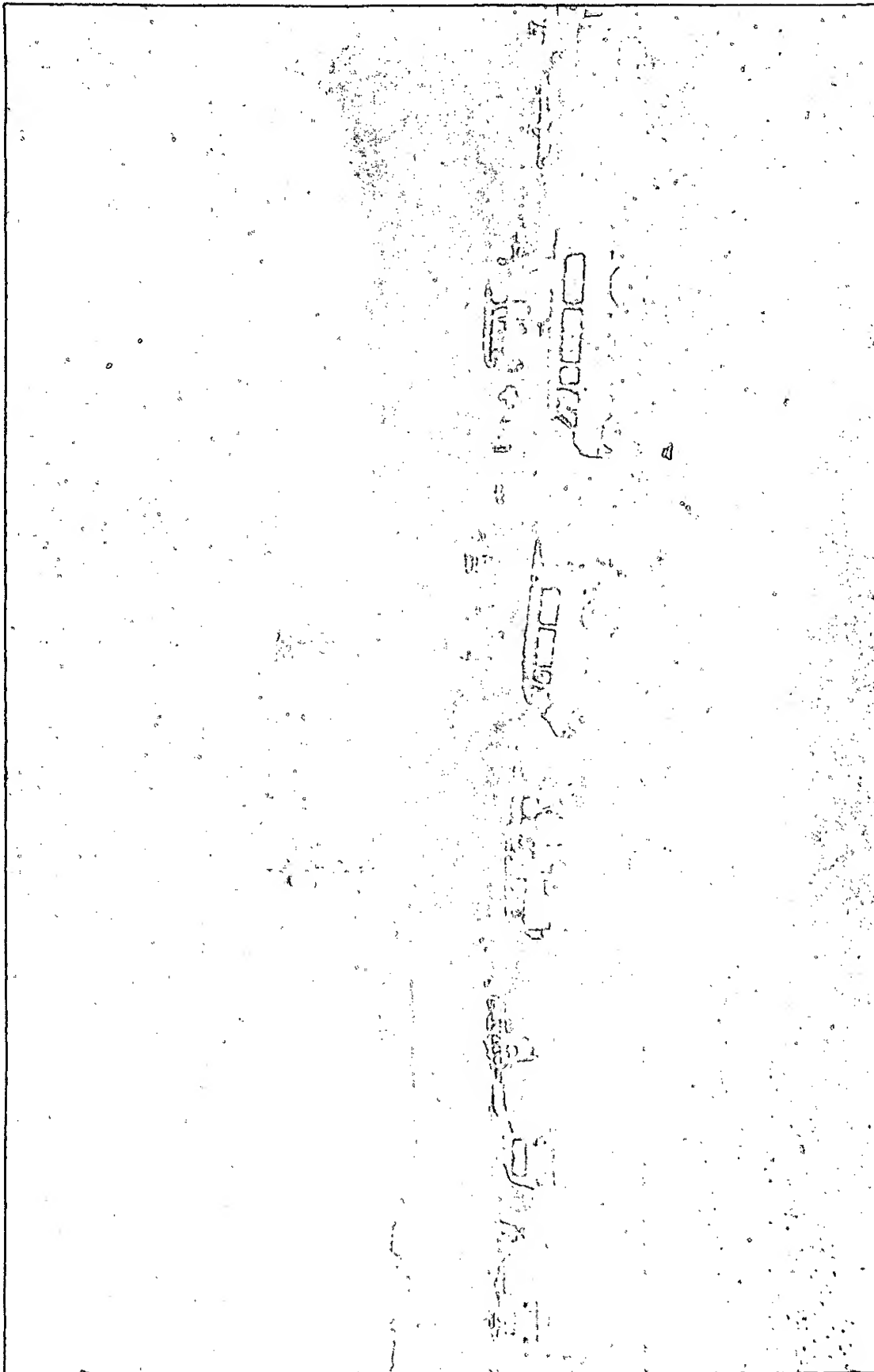
TABLE 3

Percent of Participation in Employee Transportation by Race

Hartsville - July 1978

<u>Mode of Travel</u>	<u>Black Employees</u>	<u>White Employees</u>
TVA bus or van pool	53%	36%
Private van	9	5
Carpool	35	42
Drive alone	<u>3</u>	<u>17</u>
TOTAL	100%	100%
Rideshare	97%	83%

Over half of the Hartsville black employees participate in the TVA employee transportation program, and 97 percent utilize some form of ride-sharing. Thus the program appears to be providing transportation to those



At quitting time vans go to pick up area then into traffic stream.

who have no other means of getting to work. This is supported by the fact that there are three times as many black workers at Hartsville as at other TVA construction projects.

Besides the obvious benefit of reducing traffic congestion on Highway 25, a system of ridesharing has also encouraged workers to commute from outside the impact area. This has reduced the overall impact of the project on nearby rural school systems and local government services. The ratio of commuters to movers is greater than anticipated. Therefore, the cost to the community and to TVA to mitigate the effects of the project on education (i.e., payments to school systems) and other public services has been kept to a minimum.

Ridesharing at Hartsville has proved to be more economical than building additional highway capacity and constructing and maintaining an additional onsite 1,000 parking spaces. In addition, valuable space not needed for parking is used for laydown areas (storage of pipes, etc.) needed during construction. The cost savings of deleting temporary gravel parking lots is about \$500,000.

As a result of the employee transportation program, the Hartsville project can draw its work force from a wide geographic area. TVA's ability to attract large numbers of skilled construction workers is substantially increased. As a corollary to this, the project should be better able to meet construction schedules.

Ridesharing also represents a significant savings to employees. Not only are there significant reductions in personal and aggregate fuel consumption, but wear and tear on personal vehicles are considerable decreased. As a result



of ridesharing, approximately two million gallons of gasoline per year is being saved; it is estimated that 20 million gallons of fuel will be conserved during the construction period of the project. During the peak employment years alone, ridesharing would reduce employee vehicle miles traveled (VMT) by 20 million miles annually. Assuming that the life expectancy of an automobile is 100,000 miles, this would mean that approximately 200 cars would not be worn out--a reduction in air pollution of 435 tons during peak construction years.

#### Summary

TVA's ridesharing program at Hartsville has provided important benefits to employees, to the impact area near the Hartsville project, and to TVA during the construction period. Some of the benefits are as follows:

- eliminating the need for construction of about 7.5 million dollars of highway and parking areas,
- three-fold increase in number of black employees,
- over a 100-million-mile reduction in personal worker vehicle miles traveled (VMT) in commuting to the project,
- reduction in fuel consumption by about 20 million gallons,
- reduction in air pollution of over 2,500 tons,

- maintaining construction schedules,
- minimal impacts on nearby school systems and city services,
- ability to recruit skilled labor,
- reduced absenteeism and tardiness, and
- increased employee morale and commuting costs savings.

#### Conclusion

The TVA ridesharing program at Hartsville demonstrates that bus and van pools can provide a viable alternative to single occupant automobiles for construction commuter transportation. The program illustrates that money used for conservation instead of costly unneeded auxiliary construction can provide significant social, energy, and environmental benefits. Due to the success of the Hartsville project ridesharing program, TVA has started a similar program at its Yellow Creek Nuclear Plant construction project in Iuka, Mississippi.